

**CAMEO** *Chemicals***Chemical Datasheet****DIMETHOATE****Chemical Identifiers**

CAS Number	UN/NA Number	DOT Hazard Label	CHRIS Code
60-51-5	2783	Poison	none

NFPA 704

data unavailable

General Description

A white crystalline solid, with a camphor-like odor, white to grayish crystals for technical product. This material is a contact and systemic organophosphate insecticide effective against a broad range of insects and mites when applied on a wide range of crops. It has not been produced in the U.S. since 1982. (EPA, 1998)

Hazards**Reactivity Alerts**

none

Air & Water Reactions

It is stable in aqueous solution but is hydrolyzed by aqueous alkali.

Fire Hazard

As with other organophosphorus pesticides, container may explode in heat of fire. The temperature of storage should not exceed 70-80F. Keep away from sources of heat, flames, or spark-generating equipment. Unstable in alkaline solution. Hydrolyzed by aqueous alkali. Stable in aqueous solutions. The compound is stable for 2 years under environmental conditions if stored in undamaged, original containers. (EPA, 1998)

Health Hazard

Very toxic; the probable oral lethal dose in humans is between 50-500 mg/kg, or between 1 teaspoon and 1 ounce for a 70 kg (150 lb.) person. Dimethoate is a cholinesterase inhibitor, meaning it affects the central nervous system. Death is due to respiratory arrest arising from failure of respiratory center, paralysis of respiratory muscles, intense bronchoconstriction or all three. (EPA, 1998)

Reactivity Profile

DIMETHOATE is incompatible with alkaline preparations. It is slightly corrosive to iron. It is incompatible with sulfur based formulations. (NTP, 1992). Organophosphates are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation by oxidizing agents may result in the release of toxic phosphorus oxides.

Belongs to the Following Reactive Group(s)

- Amides and Imides
- Esters, Sulfate Esters, Phosphate Esters, Thiophosphate Esters, and Borate Esters

Potentially Incompatible Absorbents

No information available.

Response Recommendations

Isolation and Evacuation

Excerpt from GUIDE 152 [Substances - Toxic (Combustible)]:

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2012)

Firefighting

Procedures for organophosphorus pesticides are as follows. Dike fire control water for later disposal, do not scatter the material. Wear positive pressure breathing apparatus and protective clothing. Fight fire from maximum distance.

This material is an organophosphate insecticide.

Methods for organophosphorus pesticides are as follows. Small fires: dry chemical, carbon dioxide, water spray, and foam. Large fires: water spray, fog, or foam. (EPA, 1998)

Non-Fire Response

Dimethoate is an organophosphate insecticide.

Precautions for organophosphorus pesticides include the following. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. Ventilate closed spaces before entering them. Remove and isolate contaminated clothing at the site. Do not touch spilled material; stop leak if you can do so without risk. Use water spray to reduce vapors.

Small spills: absorb with sand or other noncombustible absorbent material and place into containers for later disposal.

Small dry spills: with clean shovel place material into clean, dry container and cover; move containers from spill area.

Large spills: dike far ahead of spill for later disposal. (EPA, 1998)

Protective Clothing

For emergency situations, wear a positive pressure, pressure-demand, full facepiece self-contained breathing apparatus (SCBA) or pressure- demand supplied air respirator with escape SCBA and a fully-encapsulating, chemical resistant suit. (EPA, 1998)

DuPont Tychem® Suit Fabrics

No information available.

First Aid

Note: Dimethoate is a cholinesterase inhibitor.

Signs and Symptoms of Acute Dimethoate Exposure: Acute exposure to dimethoate may produce the following signs and symptoms: pinpoint pupils, blurred vision, headache, dizziness, muscle spasms, and profound weakness. Vomiting, diarrhea, abdominal pain, seizures, and coma may also occur. The heart rate may decrease following oral exposure or increase following dermal exposure. Hypotension (low blood pressure) and chest pain may be noted. Hypertension (high blood pressure) is not uncommon. Respiratory effects may include dyspnea (shortness of breath), respiratory depression, and respiratory paralysis. Psychosis may occur.

Emergency Life-Support Procedures: Acute exposure to dimethoate may require decontamination and life support for the victims. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Air-purifying or supplied-air respiratory equipment should also be worn, as necessary. Rescue vehicles should carry supplies such as plastic sheeting and disposable plastic bags to assist in preventing spread of contamination.

Inhalation Exposure:

1. Move victims to fresh air. Emergency personnel should avoid self-exposure to dimethoate.
2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
3. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
4. Transport to a health care facility.

Dermal/Eye Exposure:

1. Remove victims from exposure. Emergency personnel should avoid self- exposure to dimethoate.
2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
3. Remove contaminated clothing as soon as possible.
4. If eye exposure has occurred, eyes must be flushed with lukewarm water for at least 15 minutes.
5. Wash exposed skin areas three times with soap and water.
6. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
7. Transport to a health care facility.

Ingestion Exposure:

1. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
2. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
3. Activated charcoal may be administered if victims are conscious and alert. Use 15 to 30 g (1/2 to 1 oz) for children, 50 to 100 g (1-3/4 to 3-1/2 oz) for adults, with 125 to 250 mL (1/2 to 1 cup) of water.

4. Promote excretion by administering a saline cathartic or sorbitol to conscious and alert victims. Children require 15 to 30 g (1/2 to 1 oz) of cathartic; 50 to 100 g (1-3/4 to 3-1/2 oz) is recommended for adults.
5. Transport to a health care facility. (EPA, 1998)

Physical Properties

Chemical Formula: C₅H₁₂NO₃PS₂

Flash Point: 124 ° F (EPA, 1998)

Lower Explosive Limit (LEL): data unavailable

Upper Explosive Limit (UEL): data unavailable

Autoignition Temperature: data unavailable

Melting Point: 125 ° F 113 to 117° F for technical product. (EPA, 1998)

Vapor Pressure: 8.5e-06 mm Hg at 77.0 ° F (EPA, 1998)

Vapor Density (Relative to Air): data unavailable

Specific Gravity: 1.277 at 149.0 ° F (EPA, 1998)

Boiling Point: 243 ° F at 0.1 mm Hg (NTP, 1992)

Molecular Weight: 229.28 (EPA, 1998)

Water Solubility: 1 to 10 mg/mL at 75° F (NTP, 1992)

IDLH: data unavailable

AEGLs (Acute Exposure Guideline Levels)

No AEGL information available.

ERPGs (Emergency Response Planning Guidelines)

No ERPG information available.

PACs (Protective Action Criteria)

Chemical	PAC-1	PAC-2	PAC-3
Dimethoate (60-51-5)	2.7 mg/m ³	30 mg/m ³	30 mg/m ³

(SCAPA, 2012)

Regulatory Information

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112 (r) RMP TQ
Dimethoate	60-51-5	500/10000	10	10	313	P044	

(EPA List of Lists, 2012)

Alternate Chemical Names

- AADIMETHOAL
- ACETIC ACID, O,O-DIMETHYLDITHIOPHOSPHORYL-, N-MONO- METHYLAMIDE SALT

- AMERICAN CYANAMID 12,880
- BI 58
- 8014 BIS HC
- CL 12880
- CYGON
- CYGON 2E
- CYGON 400
- CYGON 4E
- CYGON INSECTICIDE
- DAPHENE
- DE-FEND
- DEMOS-L40
- DIMETHOATE
- DIMETHOGEN
- DIMETON
- DIMEVUR
- ENT 24650
- EXPERIMENTAL INSECTICIDE 12,880
- EXPERIMENTAL INSECTICIDE 12880
- FIP
- FOSFATOX R
- FOSFOTOX
- FOSFOTOX R
- FOSFOTOX R 35
- FOSTION MM
- LURGO
- NCI-C00135
- O,O-DIMETHYL S-(N-METHYL- CARBAMOYLMETHYL) DITHIOPHOSPHATE
- O,O-DIMETHYL S-(N-METHYLCARBAMOYLMETHYL) DITHIOPHOSPHATE
- O,O-DIMETHYL S-(N-METHYLCARBAMOYLMETHYL) PHOSPHORODITHIOATE
- O,O-DIMETHYL S-METHYLCARBAMOYLMETHYL PHOSPHORODITHIOATE
- O,O-DIMETHYLDITHIOPHOSPHORYLACETIC ACID, N-MONOMETHYLAMIDE SALT
- PEI 75
- PERFECTHION
- PERFEKTHION
- PERFEKTHION S
- PHOSPHAMID
- PHOSPHAMIDE
- PHOSPHOR- ODITHIOIC ACID, O,O-DIMETHYL S-(2-(METHYLAMINO)-2-OXOETHYL) ESTER
- PHOSPHORODITHIOIC ACID O,O-DIMETHYL ESTER, ESTER WITH 2-MERCAPTO-N-METHYLACETAMIDE
- PHOSPHORODITHIOIC ACID, O,O-DIMETHYL ESTER, S-ESTER WITH 2-MERCAPTO-N-METHYLACETAMIDE
- PHOSPHORODITHIOIC ACID, O,O-DIMETHYL S-(METHYLCARBAMOYLMETHYL) ESTER
- RACUSAN
- ROGOR
- ROGOR 20L
- ROGOR 40
- ROGOR L
- ROGOR P
- ROXION
- S-METHYLCARBAMOYLMETHYL O,O-DIMETHYL PHOSPHORODITHIOATE
- SALUT
- SINORATOX
- SISTEMIN

- SYSTEMIN
- SYSTEMIN (PESTICIDE)
- SYSTOATE
- TARA
- TARA 909